RICE

MECH. 431: SENIOR LAB I
Fall 2016 Syllabus

Course Description

Working in groups, students shall perform experiments in thermodynamics, heat transfer, and instrumentation. There will be eight groups (An "A" and "B" group on each day, from Monday through Thursday). Starting times for "A" groups will be 2:00 PM on Mondays and Wednesdays, and 2:30 PM on Tuesdays and Thursdays. The "B" groups will start at 3:30 PM on Mondays and Wednesdays, and 4:00 PM on Tuesdays and Thursdays.

Instructions are to be read prior to the starting time and all group members should arrive at the laboratory prepared to perform the experiment. Execution of the lab experiment and assembly of the report are the responsibility of the Leader, who will designate the Recorder(s) and other assignments required to conduct the experiment. The Recorder(s) are responsible for collection of data during the experiment. The groups are responsible for analyses of recorded data, guided by the group Leaders. Leadership responsibility will rotate among group members in alphabetical order.

Goals

This course is intended to further engineering laboratory education by providing opportunity for investigation of practical applications of engineering principles. Specific goals for this course are to develop/ enhance capabilities in the follow areas:

- Writing Engineering Reports
- Analyzing Experimental Data
- Handling Error in Experimental Data
- Applying Theory in Practical Applications
- Using the Scientific Method in Testing
- Interpreting Results and Making Conclusions

Group Report

On the group report you are encouraged to work with others: classmates, lab assistants, instructor, etc. Some experiments may contain specific instruction regarding report content, but all group reports should include the following sections: Title Page, Observed Data, Sample Calculations, Calculated Results, and Graphs. See attached Report Outline for more detail on the sections.

Individual Reports

Separate original reports by each group member containing a brief introductory statement of the experiment, descriptions of any problems encountered while conducting the experiment or analyzing observed data, comparisons of actual and anticipated results, potential sources of error, and conclusions (See Report Outline). **Do not** copy other peoples' individual reports (including reports from previous years). **Do** consult with your instructor/lab assistant as needed on individual reports.

These individual reports should be carefully prepared with the author clearly identified (this can be a problem particularly if individual reports are submitted separately from the group reports). Brevity, good grammar, correct spelling and logical exposition are important. Don't simply repeat information contained in the instructions.

General

Instructor: Dr. Leroy Chiao
Email: leroy.chiao@rice.edu
Phone: 713-854-1109
Office: Bioscience Research Collaborative (BRC), Suite 935

Office Hours: By appointment (use Email to schedule appointment)
Any student with a disability requiring accommodation in this course is encouraged to contact the instructor. Additionally, these students should contact Disability Support Services in the Ley Student Center.

Grading

Each experiment requires a single formal report prepared with the aid of a computer and appropriate software such as Word, Excel and Matlab. Text, tables, calculations and graphs prepared by hand are unacceptable. Completed reports are to be deposited in the "In Box" at the MEMS office or given to the instructor before 5:00 PM on the due date. Graded reports will be returned approximately two weeks after receipt of all reports for a particular experiment. Each group member will receive a grade based on 1) the group report as a whole (50 points max.) and 2) that member's individual report (50 points max.). Your final grade will be based on the average of all your group plus individual report grades in this course. The initial Cold Fusion assignment will count as the equivalent of an individual report.

Attendance at lab sessions is required for a grade on your individual lab report. If you have a conflict with your lab session time, you should make arrangements with the instructor/lab assistant to attend a session at another lab time.
I strongly encourage you to avoid waiting until the last minute to do these reports (you will have over two weeks to write the reports). Reports turned in late (group or individual) without an authorized excuse* will result in significant grade reduction:

LATE (after 5:00 PM on due date).....	Up to 20 % Off
> 24 HOURS LATE.....…	Up to 40% Off
> 48 HOURS LATE .....…	Up to 100 % Off

*Unless it is a true emergency, any excuse must be cleared with the instructor**.**